

## **REMARKS**

### ***In the Claims***

Claims 1-20 were pending in the application. Claims 1-11, 13-18 and 20 stand rejected, and claims 3, 12 and 19 have been objected to.

### **Claim objections**

Claim 3 has been canceled per the Examiner's observation that claim 6 adequately covers this aspect of the invention.

Claims 12 and 19 have been amended per the Examiner's suggestion to indicate that the "detector" is the "single-photon detector."

Applicants respectfully submit that the cancelation of claim 3 and the amendments to claim 12 and 19 overcome the objections to these claims.

### **Claim rejections under 35 USC §112**

Claims 1-11, 13-18 and 20 stand rejected under 35 USC §112, second paragraph, as being indefinite.

Claim 1 has been amended so that the limitation "a maximum value" now reads "the maximum number of photon counts," as previously recited in the claim. Claim 1 also indicates via underlining the addition of the word "of" in the last paragraph that was added in the previous amendment but that was not underlined.

Claim 1 has also been amended to indicate that ranges R1 and R2 are "timing" ranges, as discussed in at least paragraph [0035] of the Published Application. Claim 1 is also amended to indicate that the photon counts are from the single-photon detector detecting the weak photon pulses.

Claims 4 and 5 has been amended to recite first and second ranges of pulse widths, respectively, thereby differentiating the two ranges.

Claim 6 has been amended to indicate that ranges R1 and R2 are timing ranges. The word “select” has been deleted as unnecessary. Further, the last paragraph has been amended to indicate that the dithering around the second timing range R2 is to maintain the number of photon counts “at either said maximum number of photon counts  $N_{MAX}$  or a new maximum number of photon counts  $N'_{MAX}$ ,” as described in the Published Application in at least paragraph [0035].

Claim 7 has been amended to clarify that the detector is the single-photon detector, and that the first maximum number of photon counts is determined by detecting the weak photon pulses as defined in the second paragraph of the claim. Claim 7 has also been amended to omit reference to “T” from the claim, since it is not needed to define the claim scope. Also, the word “altering” was changed to “varying” in the last paragraph, and the words “optimal arrival time” were added in front of “ $T_{MAX}$ ” so that this term consistently reads “first optimal arrival time  $T_{MAX}$ ” throughout the claim.

Claim 7 has also been amended to distinguish between the first and second ranges of detector gate arrival times, and that the second range is within the first range. The last paragraph was also amended to distinguish between the first maximum number of photon counts and a second maximum number of photon counts, as described in at least paragraph [0035] of the Published Application.

Claim 8 has been amended to refer to the first detector gate dither, and to change the “new” optimal arrival time to a “second optimal arrival time  $T'_{MAX}$  different from the “first optimal arrival time  $T_{MAX}$ .”

Claim 9 has been amended to indicate that the first detector gate dither is being terminated.

Claim 11 has been amended in essentially the same manner as claim 7, and also includes properly introducing the controller in the second paragraph. Also,  $T_{MAX}$  has been changed to  $N_{MAX}$  in the third paragraph of the claim, because  $N_{MAX}$  and not  $T_{MAX}$  is the proper symbol for the optimal photon count.

Claim 14 has been amended to more clearly define what the “arrival time” is, and to indicate that either the first or a second optimum numbers of photon counts

can be achieved, as described in at least paragraph [0035] of the Published Application.

Claim 16 has been amended to indicate that “acts a) and b)” of claim 6 are repeated multiple times.

Claims 17-20 have been amended to add the phrase “for the single-photon detector” at the end of each claim to clarify the connection with the detector gate pulse width.

Applicants believe that the above-described amendments to the claims overcome the rejections for indefiniteness and places now-pending claims 1, 2 and 4-20 in condition for allowance.

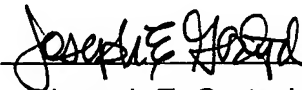
### **CONCLUSION**

Applicants respectfully submit that above-described amendments to the claims overcome the Examiner's objections to the claims and the rejections for indefiniteness, and places now-pending claims 1, 2 and 4-20 in condition for allowance. Applicants therefore respectfully request the issuance of a Notice of Allowance for the pending claims in due course.

The Examiner is encouraged to contact the Assignee's authorized representative at 941-378-2744 to discuss any questions that may arise in connection with this Reply.

Respectfully Submitted,

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